

14 JULY 1999



Personnel

OCCUPATIONAL ANALYSIS PROGRAM

----- **Compliance with this publication is mandatory** -----

This instruction implements AFD 36-26, *Military Force Management*. It prescribes procedures and responsibilities for managing and operating the Air Force Occupational Analysis Program. This instruction describes how to use occupational analysis information in determining the content of AETC training courses. It applies to HQ AETC, AETC training wings, and the Air Force Occupational Measurement Squadron (AFOMS). See Attachment 1 for a glossary of references and supporting information used in this publication.

SUMMARY OF REVISIONS

This instruction has been updated to reflect current changes in office symbols, personnel, and policies. A ★ indicates revision from the previous edition.

1. Occupational Surveys and Survey Information:

1.1. Conduct occupational surveys in accordance with AFI 36-2623, *Occupational Analysis*.

1.2. Use occupational survey information to evaluate the effectiveness of classification structures and personnel utilization policies, for designing and maintaining instructional systems, and to support the Technical Training Modernization System (TTMS).

★1.3. Accomplish occupational surveys for enlisted personnel including Air Force Reserve Command and Air National Guard personnel on a 3-year rotating cycle. Access the schedule for surveys through the Occupational Analysis Flight (AFOMS/OMY) web site (<http://www.omsq.af.mil/omy/>). Procedures for requesting an occupational survey for any type of population are outlined in AFI 36-2623.

1.4. Occupational surveys generally provide information in terms of the percentage of members performing jobs or tasks, the relative percentage of time spent performing tasks, equipment used, task difficulty (for enlisted specialties only), training emphasis, testing importance (for enlisted specialties only), and the skills and knowledge necessary to perform tasks.

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Pages: 12/Distribution: F; X:

HQ USAF/DPPE - 1

HQ AFPC/DPPAC - 1

HSC/CC - 1

USAFSAM/ED - 1

AFRL/HE - 1

2. Use of Occupational Survey Information:

2.1. The structure of jobs within an occupation should serve as a guide for refining the Air Force military classification system or personnel utilization policies for that occupation.

2.2. Individual specialty training standard (STS) line items matched to tasks performed by 20 percent or more of any criterion groups are considered to be supported by survey data and should be included in the document. For enlisted specialties, the criterion groups include first-job, first-assignment, first-enlistment, and 5- and 7-skill level groups. Task difficulty and training emphasis information will be useful in determining whether to include those line items matched to task performed by less than 20 percent criterion group members.

2.3. Consideration in designing courses includes percent of the criterion group (normally first-job or first-enlistment for airman basic residence or airman lateral residence courses) performing, training emphasis and task difficulty ratings, and requirements documented by STS elements. Criteria for advanced or specialized course training standards vary, depending on the characteristics and needs of the target population. Guidance is provided in Table A2.1, Attachment 2.

2.4. Considerations for designing officer basic residence training include the percentage of personnel performing tasks and the training emphasis ratings for the tasks.

2.5. To determine the location of task training (resident course, career development course [CDC], on-the-job training [OJT], or other), consider the data showing the percent of personnel performing, along with the task difficulty and training emphasis ratings. A primary tool for making these determinations is the training extract of occupational data which shows occupational survey tasks as they relate to training control documents--STSs, course training standards (CTS), or plans of instruction (POI). This extract will show tasks referenced to each paragraph in each of these documents and also show those tasks not referenced in any training document. Review STS, CTS, or POI objectives not supported by task data for reduction in emphasis or elimination from the document. Review tasks not referenced, but performed by an appropriate percentage of job incumbents, for potential addition to these documents.

3. Responsibilities:

3.1. The Occupational Analysis Flight of the Air Force Occupational Measurement Squadron:

3.1.1. Is the office of primary responsibility for command management of the Air Force Occupational Analysis Program, the office of primary responsibility for AFI 36-2623, and the focal point for coordinating the program with HQ USAF, HQ AETC, AF Research Lab, training wings, and other agencies. AFOMS/OMY:

3.1.1.1. Implements procedures and provides guidance for conducting the Air Force Occupational Analysis Program, and provides staff assistance to customers in the application and use of occupational analysis information to develop or refine personnel support programs.

3.1.1.2. Prepares the occupational analysis program schedule for inclusion in the AFOMS/OMY web site.

3.1.1.3. Establishes and maintains operational capability to conduct and complete occupational surveys.

3.1.1.4. Coordinates with HQ AETC/SC to ensure automation availability and support required.

3.1.1.5. Coordinates with HQ AFPC/DPPAC on survey scheduling, input for job inventories, and proposed changes in specialty classification.

3.1.1.6. Prepares occupational analysis extracts, data support packages, and briefings to support the Weighted Airman Promotion System (WAPS) program.

3.1.1.7. Conducts occupational surveys according to the schedule in the AFOMS/OMY web site and conducts special occupational analysis projects as required.

3.1.2. When initiating an occupational survey, will coordinate with HQ AETC/DO, HQ AFPC/DPPAC, appropriate Air Staff activities, major command functional managers, training wing training managers, and AFRL/HE scientists to obtain inputs for inventory development and analysis.

3.1.3. In conducting occupational surveys, will:

3.1.3.1. Develop or adapt methodology for conducting surveys and collecting data.

3.1.3.2. Coordinate with HQ AFPC/DPPAC and applicable offices on matters pertaining to administration of job inventories.

3.1.3.3. Prepare a narrative occupational survey report (OSR) for each career ladder, career field, or utilization field surveyed.

3.1.3.4. Provide a final draft copy of the OSR to HQ AETC/SG on medical specialties and HQ AFPC/DPPAC for review and comment.

3.1.4. Briefs OSR result to appropriate technical training study member. Briefs other activities as required.

3.1.5. Establishes and maintains a current occupational information library, including job inventories and OSRs.

3.1.6. Provides primary technical guidance and assistance to training personnel and other appropriate government and civilian organizations in interpreting occupational survey data.

3.1.7. Convenes meetings or workshops to discuss survey results and impacts.

3.1.8. Participates in Utilization and Training Workshops (U&TW) and provides briefings and applicable data extracts.

3.1.9. Arranges for or conducts seminars and workshops on the application of occupational analysis technology.

3.1.10. Maintains liaison with armed forces, government and civilian agencies, and allied nations to exchange information on the application of occupational analysis technology.

3.1.11. Compiles and maintains historical record files of each occupational analysis.

3.1.12. Conducts comprehensive task analysis of selected occupational specialties outlining all the resources, skills, knowledge, publications, activities, and other information necessary to perform tasks or train others to perform tasks.

3.2. HQ AETC/SC:

3.2.1. Provides technical advice to support the automation of the Occupational Analysis Program.

3.2.2. Reviews, evaluates, and approves automation requirements concerning occupational analysis technology and provides recommendations according to AFI 33-101, *Communications and Information Management Guidance and Responsibilities*.

3.3. Training groups:

3.3.1. Furnish upon request from AFOMS:

3.3.1.1. Recommendations for background information items for possible inclusion in job inventories.

3.3.1.2. Recommendations on tasks for potential inclusion in job inventories.

3.3.1.3. Subject matter experts and training specialists: (1) for field reviews of job inventories; (2) to validate adequacy, accuracy, and relevance of task statements; and (3) to participate in data analysis when appropriate.

3.3.2. Notify AFOMS of the training manager for each career ladder or utilization field who will serve as the primary point of contact for the occupational survey at the training group.

3.3.3. Provide AFOMS with a match between the job inventory tasks and the STS, CTS, and POI objectives.

3.3.4. Provide representatives to AFOMS workshops to discuss occupational analysis findings.

3.3.5. Review OSRs and accompanying data extracts for impact on managed programs. These reviews must include examination of the STS, CTS, POI, and applicable equipment printouts to determine if present training is supported and if there are areas of training requiring further justification or modification. Within 90 days after receipt of OSR and data extracts, submit a group response listing proposed changes (if applicable) to training and rationale for nonconcurrence with occupational analysis findings. Send the response to the Air Force career field manager with an information copy to AFOMS/OMY. If a U&TW is scheduled within 6 months of receipt of OSR, immediately examine the occupational analysis information in preparation for the workshop and submit the response within 30 days after the workshop.

3.3.6. Maintain, in the course file, the rationale for exceptions to training standards and POI guidance stated in this instruction.

4. Distribution of Occupational Survey Reports. In addition to the distribution required in AFI 36-2623, OSRs are distributed as follows: (**NOTE:** This requirement is exempt from licensing according to AFI 37-124, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections*, paragraph 2.11.12.)

4.1. HQ AETC/SG - One copy of narrative report and training extract for medical specialties.

4.2. HQ AETC/DO - One copy of narrative for flying, life support, and survival specialty studies, with one copy of the training extract.

4.3. Training group - Two copies of narrative report and applicable data extracts, to be maintained by appropriate training manager and training development branch.

4.4. MAJCOM - Three copies of the narrative report for the functional manager.

4.5. Other agencies - As requested.

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Director of Operations

2 Attachments

1. Glossary of References and Supporting Information
2. Training Decision Logic Table

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFI 33-101, *Communications and Information Management Guidance and Responsibilities*
AFPD 36-26, *Military Force Management*
AFI 36-3623, *Occupational Analysis*
AFI 37-124, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections*

Abbreviations and Acronyms

AFOMS—Air Force Occupational Measurement Squadron
AFS—Air Force specialty
AFSC—Air Force specialty code
AL—Armstrong Laboratory
ATI—Automated training indicator
CDC—Career development course
CODAP—Comprehensive occupational data analysis programs
CTS—Course training standard
EPI—Electronics principles inventory
OJT—On-the-job training
OSR—Occupational survey report
POI—Plan of instruction
SKT—Specialty Knowledge Test
STS—Specialty training standard
TTMS—Technical training modernization system
U&TW—Utilization and training workshops
WAPS—Weighted Airman Promotion System

Terms

Air Force Occupational Analysis Program—The program which collects and maintains an occupational database to provide information about Air Force jobs. The process involves developing a survey questionnaire, collecting and analyzing data, and reporting resulting survey information. The information gained from this program is used to: (a) maintain Air Force occupational structures within the airman and officer classification systems, (b) adjust or establish Air Force specialty (AFS) training programs, and (c) sustain or modify other Air Force personnel management systems.

Automated Training Indicators (ATI) —A tool used to identify probable training decisions based upon occupational survey information. ATIs are determined using training emphasis data and task difficulty data along with percent performing data applied to the decision logic table (Table A2.1, Attachment 2). By determining whether a particular task is performed by high, medium, or low percentages of criterion groups, whether senior NCOs rated the task as requiring high, above average, or average training emphasis, and whether senior NCOs rated the task as low or high in difficulty, the logic table leads to suggested decisions about the appropriateness of training for the task. At present, ATIs are available only for enlisted entry-level training and only if both training emphasis and task difficulty are collected with satisfactory agreement among the raters.

Centralized Training—Resident airman basic technical or lateral training leading to award of the semiskilled level Air Force specialty code (AFSC). Resident officer basic technical courses.

Comprehensive Occupational Data Analysis Programs (CODAP)—A series of computer programs created by the Armstrong Laboratory (AL) specifically designed for analysis of occupational data.

Duty—A group of related tasks. The tasks contained in a job inventories are organized into duties. Duties may include functionally related tasks such as management, training, or job control. Duties may also include tasks related through commonality of some system maintained or mission performed by an occupation.

Electronics Principles Inventory (EPI)—A knowledge-based job inventory providing data on the domain of electronics principles personnel must use to perform electronic-oriented jobs.

Extract—Data printouts generated during an occupational analysis project which are compiled in several volumes and provided to selected users as follows:

(1) *Training Extracts* include several standard printouts displaying survey data matched with the specialty training standard and entry-level course plans of instruction; survey data sorted by inventory, training emphasis, and task difficulty order; and summaries of pertinent background information such as equipment used or systems operated or maintained. These extracts are routinely provided to Air Force career field managers (AFCFM), training personnel at appropriate AETC training wings, and MAJCOM functional managers (MFM) of commands employing personnel in the occupation under study. They are designed to facilitate preparation for utilization and training workshops and other periodic reviews of personnel classification, training, and utilization programs and practices.

(2) *Specialty Knowledge Test (SKT) Extracts* include survey data by paygrades. These extracts are provided to the Air Force Occupational Test Development Program (AFOMS/OMD) for use by subject matter experts (SME) in writing SKTs as part of the Weighted Airman Promotion Testing System.

(3) *Analysis Extracts* include printouts compiled by the occupational analyst in the course of the analysis. This extract is constructed to facilitate rapid answers to future questions about the occupation, once the initial delivery of survey information is completed. Experience shows survey data to be fairly stable, and is often valid 4 to 10 years after initially collected, barring radical technological change or restructuring of responsibilities. The analysis extract provides AFOMS/OMY the foundation to go into and answer questions raised during that time. A copy of the analysis extract is provided the appropriate AETC training wing and a copy is kept at AFOMS. Other users may obtain all or parts of the analysis extract by special request.

(4) *Special Extracts* may be developed to cover specific issues of a given survey project. These extracts will be tailored by the analyst and provided to users as deemed appropriate by AFOMS/OMY and the specific customers.

Occupational Survey—Air Force procedures for identifying duties and tasks which comprise one or more shredouts, prefixes, specialties, career fields, ladders, utilization fields, or civilian job series and for collecting, collating, and analyzing information concerning such duties and tasks.

Occupational Survey Data—Quantified job or background information about incumbents in an airman career ladder or career field, in an officer utilization field, or in a specially defined population. This information is collected by using US Air Force job inventories, and reports are developed using CODAP.

Occupational Survey Report (OSR)—A written narrative summary of the results of an occupational survey. It includes sampling information on respondents participating in the survey; descriptions of the structure of jobs performed by the sample; duty and task job descriptions for various skill-level groups and experience-level groups, CONUS vs overseas groups, and major command groups; implications for classification and training policies as expressed in specialty descriptions, specialty training standards, and career field education and training plans; and measures of job satisfaction from the respondents.

Percent Members Performing—The proportion of survey respondents in a designated group who indicate they perform a task. The data indicate the probability of performance of any given task by members of a specialty or any subgroup (for example, first-enlistment personnel).

Percent Time Spent—An estimate of relative time spent by a person or group of persons on a task or group of tasks. Survey respondents rate each task performed on a relative time-spent scale ranging from "1" (very small amount of time spent) to "9" (very large amount of time spent). In making this rating, each respondent compares relative time spent on the task being rated with relative time spent on each of the other tasks performed. Assuming that all tasks checked represent 100 percent of a person's job time, the ratings of all tasks checked are summed and this total is divided back into the numerical rating given each task response. The quotient is multiplied by 100 to give a percentage of relative time spent on each task. Thus, tasks marked by each incumbent can be compared to any other incumbent's ratings, permitting comparison and consolidation of job descriptions of all the respondents to that survey.

Structure Analysis—A study of the natural groupings of jobs performed within an occupation (career ladders, utilization field, or specially defined populations) based on task performance data and certain other background information of the incumbents.

Task—The basic unit of measurement in occupational surveys. A task is a segment of work which has a definite beginning and end; and when performed, is performed in its entirety by a job incumbent. Tasks are mutually exclusive, observable, time ratable, and phrased to communicate in the language of the occupational group.

Task Analysis—The process used to determine how to perform a specific task within a specific duty. It is a systematic study to determine the activities, skills, knowledges, resources, publications, tools, and equipment required to perform a specific task. Task analyses target selected AFSCs which are not technical order-driven and consist of selected tasks within the specialty which have high Training Emphasis and Training Learning Difficulty indexes and are performed by a large number of 5-skilled level journeymen (duty).

Task Analysis Report—A written compilation of Task Analysis Worksheets which were completed as a result of the Task Analysis process. The individual worksheet are often referred to a task breakdown.

Task Difficulty (TD)—A rating scale which measures the relative difficulty of tasks in a job inventory, where difficulty is defined as the length of time required by an average incumbent to learn to do the task. Experienced personnel in a career ladder or utilization field or special population are asked to rate each task in their job inventory on a 9-point scale as to its relative difficulty, using "1" (to indicate extremely low difficulty) through "9" (to indicate extremely high difficulty). Ratings are adjusted so tasks of average difficulty have a mean rating of 5.00 and a standard deviation of 1.00.

Task Module (TM)—A small grouping of tasks useful for summarizing survey data. Task modules can be created using a number of methods. The procedure used at AFOMS/OMY begins with an automated clustering process that links tasks that are co-performed. Co-performance is a measure of the probability that if an incumbent performs one task, that incumbent will also perform other tasks. It is derived by first calculating the degree to which each task is co-performed with all other tasks in the inventory by all incumbents in a survey sample. Once this "index of co-performance" is obtained, the tasks are hierarchically grouped into modules of tasks that, by that survey sample, are performed together. The underlying assumption is that tasks performed together have a high probability of sharing common knowledges and skills. Once the tasks have been grouped into modules based on co-performance, they are refined by the occupational analyst, using career field research and subject matter expert input. These TMs are then used in other analyses of the occupation, such as personnel utilization patterns and content of existing or proposed training programs.

Three-Year Cycle—The objective of the Air Force Occupational Analysis Program is to maintain current, valid occupational survey data on every active duty enlisted specialty of the Air Force, and to survey officer and special populations as customers require. To satisfy the need to maintain currency of survey information on the total enlisted Air Force, AFOMS/OMY resurveys periodically. Given the number of enlisted occupations, AFOMS/OMY can resurvey the current specialties about every 3 years. However, the schedule is flexible, allowing for sooner revision if technology or changes make a new survey necessary.

Training Emphasis (TE)—A rating scale for tasks which measures perceptions as to which tasks should be emphasized in structured training for entry-level personnel. Structured training includes, but is not limited to, basic resident technical training courses, formal on-the-job training (OJT), and career development courses (CDC). Experienced NCOs or officers in each AFS surveyed are asked to rate job inventory tasks on a 10-point scale, with "0" meaning no training required, and "1" meaning very little emphasis is needed in training through "9" indicating an extremely high training emphasis. Research conducted by the Armstrong Lab shows that experienced NCOs or officers consider factors such as percent of members performing a task, average grade level of personnel performing a task, and task criticality when they rate which tasks should be emphasized in some type of structured training. It is important to consider task TE ratings in relation to the mean (average) and standard deviation (amount of variance in the ratings) for each AFS separately. Also, it is important to note that TE is generally available only for entry-level personnel, and is usually applicable only to that group of incumbents.

USAF Job Inventory—The questionnaire for conducting an occupational survey. It consists of: (1) a biographical information section where survey respondents provide identifying information such as grade, time in service, telephone number, etc.; (2) a background section where respondents provide information about their jobs such as job interest, career intentions, training history, equipment maintained used, or worked on; and (3) a section listing task statements which survey respondents may perform in their current job. Currently, this questionnaire is typically provided in a scannable paper-and-pencil format. However, in the future, more and more surveys will be conducted using computer-based technology.

TRAINING DECISION LOGIC TABLE

Table A2.1. Training Decision Logic Table.

I T E M	A	B	C	D	E	F
	Occupational Survey Data				Training Decision	
	Percent of Criterion Group Performing	First-Term Training Emphasis Rating (note 1)	Task Difficulty Rating (note 2)	Examine Reason for Training Emphasis Rating	Type of Training Provided (Unless Otherwise Justified)	ATI
1	50-100 (high probability of performance during next 2-4 years)	High	4.00+		TASK KNOWLEDGE AND PERFORMANCE based on high probability of task performance, field recommended training emphasis ratings, and sufficient difficulty	18
2			3.99 and below	Documented critical or safety item	TASK KNOWLEDGE AND PERFORMANCE based on high probability of task performance and documented criticality or safety issue	13a
3				Not critical or safety item	TRAIN BY OJT, no centralized training based on low difficulty and lack of criticality or safety issue	13b
4		Above average	4.00+		TASK KNOWLEDGE AND PERFORMANCE based on high probability of task performance, field recommended training emphasis ratings, and sufficient difficulty	17
5			3.99 and below		TRAIN BY OJT, no centralized training based on low difficulty	8
6		Average or below	4.00+	Determine why training emphasis is low	TASK KNOWLEDGE AND PERFORMANCE based on high probability of task performance and sufficient difficulty, unless otherwise justified	16
7			3.99 or below		TRAIN BY OJT, no centralized training based on low difficulty together with low field recommended training emphasis	6
8	30-49 (moderate probability of performance during next 2-4 years)	High	4.00+	Documented critical or safety item	TASK KNOWLEDGE AND PERFORMANCE based on criticality or safety determination, field recommended training emphasis, and moderate probability of performance	12a
9			3.99 or below		TASK KNOWLEDGE ONLY or emphasized teaching step based on criticality or safety determination, low difficulty,	10a

I T E M	A	B	C	D	E	F
	Occupational Survey Data				Training Decision	
	Percent of Criterion Group Performing	First-Term Training Emphasis Rating (note 1)	Task Difficulty Rating (note 2)	Examine Reason for Training Emphasis Rating	Type of Training Provided (Unless Otherwise Justified)	ATI
					and moderate probability of performance	
10			4.00+	Not critical or safety item	TASK KNOWLEDGE ONLY based on moderate probability of performance, high field recommended training emphasis, and sufficient difficulty unless otherwise justified	12b
11			3.99 or below		TRAIN BY OJT, no centralized training based on low difficulty and lack of safety or criticality issue	10b
12		Above average	4.00+		TASK KNOWLEDGE ONLY based on moderate probability of performance, above average field recommended training emphasis, and sufficient difficulty	15
13			3.99 or below		TRAIN BY OJT, no centralized training based on low difficulty, and moderate percent performing, and field recommended training emphasis	5
14		Average or below	4.00+	Determine why training emphasis is low	TASK KNOWLEDGE ONLY based on moderate probability of performance, low field recommended training emphasis, and sufficient difficulty unless justified	14
15			3.99 or below		TRAIN BY OJT, no centralized training based on difficulty, low field recommended training emphasis, and only moderate probability of performance	4
16	29 or below (low probability of performance during next 2-4 years)	High	4.00+	Documented critical or safety item	TASK KNOWLEDGE AND PERFORMANCE training, if most appropriate place to train is school, based on inability of field to train	11a
17			3.99 or below		TASK KNOWLEDGE ONLY, if most appropriate place to train is school based on low probability of performance and low difficulty	9a
18			4.00+	Not critical or safety item	TRAIN BY OJT, no centralized training	11b
19			3.99 or below		TRAIN BY OJT, no centralized training based on low	9b

I T E M	A	B	C	D	E	F
	Occupational Survey Data				Training Decision	
	Percent of Criterion Group Performing	First-Term Training Emphasis Rating (note 1)	Task Difficulty Rating (note 2)	Examine Reason for Training Emphasis Rating	Type of Training Provided (Unless Otherwise Justified)	ATI
					probability of performance and low difficulty unless justified	
20		Above average	4.00+		TRAIN BY OJT, no centralized training based on low probability of performance and low difficulty unless justified	7
21			3.99 or below		TRAIN BY OJT, no centralized training based on low probability of performance and low difficulty	3
22		Average or below	4.00+		TRAIN BY OJT, no centralized training based on low probability of performance and low field recommended training emphasis	2
23			3.99 or below		TRAIN BY OJT, no centralized training based on low probability of performance, low difficulty, and low field recommended training emphasis	1

NOTES:

1. Definitions of first-term training emphasis ratings:

High = one standard deviation or more above the mean

Above average = mean to one standard deviation above the mean

Average or below = mean training emphasis rating

2. Definitions of task difficulty rating:

4.00+ = difficult enough to warrant consideration for centralized training

3.99 and below = low difficulty